USDA
NATURAL RESOURCES
CONSERVATION SERVICE

DELAWARE CONSERVATION
PRACTICE STANDARD

FEED RELATED AMENDMENTS

(Reported as Pounds of Amendment per Pound of Feed)

DEFINITION

The addition of chemicals and compounds to animal feeds to improve the health and growth of the animal, or to modify the characteristics of the waste to reduce nutrient excretion.

PURPOSES

For purposes of this standard, additives are used to alter the chemical characteristics of the waste as part of a nutrient and waste management plan to:

1. Improve or protect air quality
2. Improve or protect water quality
3. Improve or protect animal health
4. Alter the consistency of the waste stream to facility implementation of a waste management system

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where the use of a chemical amendment(s) to animal feed will alter the physical and chemical characteristics of the waste as a part of a planned nutrient and waste management plan.

CONSIDERATIONS

The use of an amendment will alter the nutrient composition of the waste. Some amendments have been shown to effectively impact multiple purposes of this standard and other aspects of a livestock production operation. Preference should be given to amendments with the greatest environmental and economic benefit.

One of the most effective feed amendments for poultry and swine is Phytase which lowers the amount of supplemental phosphorus required in the diet. Because of improved dietary phosphorus utilization, less phosphorus is excreted in the manure.

The selection of amendments should be mutually agreed by all contractual parties and compatible with the intended end use of the manure or litter.

CRITERIA

General Criteria Applicable to All Purposes

Laws, Rules, and Regulations. Use of amendments as a part of a waste management system shall be planned and implemented to meet all federal, state, and local laws, rules, and regulations.

Labeling and Instructions for Use. Products to be used as manure amendments shall be labeled or accompanied by instructions containing the following information as a minimum:

1. Active ingredients and their percentage of the whole. Proprietary terminology may be used as long as the actual chemical and/or biological names are included.
2. The purpose(s) for which the amendment is intended.
3. Recommended application rate(s) to achieve the intended purpose(s).
4. Application timing and methodology to optimize the effectiveness of the amendment.
5. Incorporation requirements.
6. Special handling and storage requirements for the amendment. Note that Phytase is susceptible to degradation during extended storage periods.
7. Any safety concerns relating to the use of the amendment and recommended

measures to overcome the safety concern, including any required personal protective equipment.

Validation of Product. The specific rate, timing, and application methodology of an amendment to achieve a needed level of treatment addressing a specific purpose must be documented by the University of Delaware animal specialist or other independent research entity acceptable to the NRCS. Documentation from peer-reviewed journals is preferable. Potential adverse impacts of the amendment on the ecosystem shall also be identified in the documentation.

Common feed additives used in poultry diets include antimicrobials, antioxidants, emulsifiers, binders, pH control agents and enzymes (Phytase).

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared in accordance with the previously listed criteria. Plans and specifications shall contain sufficient detail to ensure successful implementation of this practice. Documentation shall be in accordance with the section "Supporting Data and Documentation" in this standard.

OPERATION AND MAINTENANCE

A Site specific operation and maintenance (O&M) plan shall be developed and reviewed with the operator and owner prior to implementation of the practice. The O&M plan shall be consistent with the purposes of the practice, safety considerations, and label directions and other instructions provided by the vendor.

The O&M plan shall provide sufficient detail as to amendments to be used, application rates, timing, and equipment to be used.

The O&M plan shall detail all safety precautions necessary when handling the specific chemical amendments to be used.

The O&M plan shall provide for record keeping in sufficient detail to document the product used, the date, location, rate, method of application, and any test performed (including nutrient analysis).

SUPPORTING DATA AND DOCUMENTATION

The following is a list of the minimum data and documentation to be recorded in the case file:

1. Location of the practice on the conservation map.
2. The name of the amendment, the purpose(s) for its use, and rate and form.
3. Application methodology, including timing, equipment mixing, instructions, etc.
4. Results from manure laboratory analysis to determine the nutrient content of the manure.

REFERENCES

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2. Hansen, D., J. Nelson, G. Binford, T. Sims and W. Saylor. 2005. Phosphorus in poultry litter: New guidelines from the University of Delaware. Coll. Agric. Nat. Res. Bull. NM-07. June 21, 2005

3. Angel, R., W. W. Saylor, A. S. Dhandu, W. Powers and T. J. Applegate. 2005. Effects of dietary phosphorus, phytase, and 25-hydroxycholecalciferol on performance of broiler chicks grown in floor pens. Poultry Sci. 84:1031-1044

4. McGrath, J. M., J. T. Sims, R. O Maguire, W. W. Saylor, C. R. Angel and B. L. Turner. 2005. Broiler diet modification and litter storage: Impacts on phosphorus in litters, soils, and runoff. J. Environ. Quality 34:1896-1909.Cotterill, O.J. and A.R. Winter.

Some Nitrogen Studies of Built-Up
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